

**REMARKS:**

**Status Of Claims**

Claims 1-4, 6-10, 12-21, 23-33, 35-41, and 43-46 were previously pending. Claims 3, 10, 18, 33, and 41 have been amended. Thus, claims 1-4, 6-10, 12-21, 23-33, 35-41, and 43-46 are currently pending in the application with claims 1, 8, 14, 21, 29, 37, and 44 being independent.

**Office Action**

In the office action, the Examiner rejected claims 1-4, 6-10, 12-15, 20, 21, 23-41, and 44-46 under 35 U.S.C. § 103(a) as being unpatentable over Fruchterman et al., U.S. Patent No. 5,470,233, in view of Tognazzini, U.S. Patent No. 5,872,526. The Examiner also rejected claims 16-19 under 35 U.S.C. 103(a) as being unpatentable over Fruchterman and Tognazzini in view of Kronfeld, U.S. Patent No. 6,577,947. The Examiner also rejected claims 42 and 43 under 35 U.S.C. 103(a) as being unpatentable over Fruchterman. Applicant respectfully submits that the currently pending claims distinguish the present invention over Fruchterman, Tognazzini, Kronfeld, and the other prior art references taken alone or in combination.

Specifically, claims 1, 8, and 14 each recite "analyzing cartographic data for a predetermined area around the present location for user identified criteria to avoid, wherein a shape of the predetermined area is based on a heading". Similarly, claim 29 recites "analyzing cartographic data for a predetermined area around the present location for user

identified criteria to avoid, wherein a size of the predetermined area is based on a speed". Finally, claim 44 recites "analyzes cartographic data for a predetermined area around the present location value for user identified criteria to avoid, wherein a size and shape of the predetermined area is based on a speed and heading".

In contrast, neither Fruchterman nor Tognazzini discloses a size or shape of the predetermined area being based on a speed or heading. The Examiner admits that "Fruchterman does not teach a predetermined area around a user with a predetermined shaped based on heading". Page 2 of the May 2, 2006 Office Action. Thus, the Examiner cites Tognazzini and mistakenly asserts that Tognazzini "calculates a predetermined area based on heading (column 7-8)". Page 3 of the May 2, 2006 Office Action. However, columns 7 and 8 of Tognazzini merely teach "a threat sphere" or a "threat cylinder ... the axis of which extends in the Z (elevational) direction". Column 8, lines 9-18. Furthermore, as disclosed in column 8, lines 9-19, the threat sphere and threat cylinder are simply centered on a current location and are defined by the formulas  $X^2 + Y^2 + Z^2 = R^2$  and  $X^2 + Y^2 = R^2$  (for all values of Z), respectively. A sphere or vertical cylinder, by their very nature, and as defined by these formula, must be completely independent of heading. Thus, Tognazzini teaches a threat boundary completely independent of heading.

With regard to speed, as claimed in claim 29 and 44, the Examiner also admits that "Fruchterman does not teach a predetermined area around a user with a predetermined shaped [size?] based on speed". Page 6 of the May 2, 2006 Office Action. Thus, the Examiner cites Tognazzini and mistakenly asserts that Tognazzini "calculates a

predetermined area based on velocity vector (column 7-8)". Page 7 of the May 2, 2006 Office Action. While Tognazinni does calculate a velocity vector, Tognazinni *never* actually associates his velocity vector with the radius R of his threat sphere/cylinder. Therefore, Tognazinni simply does not teach basing *a size* of the predetermined area on a speed or heading, as claimed. As a result, Tognazinni neither teaches the limitations missing from Fruchterman nor supplies the requisite motivation for modifying Fruchterman. As a preemptive comment, Applicant would like to make the Examiner aware that Kronfeld does not cure this defect either, since Kronfeld bases his radius on confidence level and type of threat, *not* speed or heading.

Furthermore, there is no motivation to modify either Fruchterman or Tognazinni to base a size or shape of the predetermined area on a speed or heading. For example, as Fruchterman discloses in column 17, lines 38-41, "[a] user defines an area of exclusion by inputting coordinates that correspond to the corners of a polygon defining its perimeter, or coordinates corresponding to a center point of a circle, and a desired radius". Fruchterman's area of exclusion is compared with his linear course. Therefore, Fruchterman's only predetermined area, his area of exclusion, has a size and shape defined by the user. Modifying an area of exclusion based on speed or heading would render Fruchterman's "user define[d] area of exclusion" unsatisfactory for its intended purpose. Thus, Fruchterman explicitly teaches away from basing a size or shape of the predetermined area on a speed or heading, and there can be no suggestion or motivation to modify Fruchterman.

Finally, Tognazinni is simply not analyzing cartographic data. Rather, Tognazinni analyzes positional data of other aircraft, as received from the other aircraft. Analyzing cartographic data would render Tognazinni unsatisfactory for its intended purpose, as cartographic data would not typically be of use in avoiding midair collisions between aircraft, which is Tognazinni's explicit purpose. As a result, no combination of Fruchterman and/or Tognazzini discloses, suggests, or makes obvious the limitations of claims 1, 8, 14, 29, or 44. Furthermore, neither Fruchterman nor Tognazinni can be modified to render the claimed limitations obvious, as there is, and indeed can be, no suggestion or motivation to make such a modification.

Claims 3 and 33 each now recite "wherein calculating the course includes identifying one or more non-user selected waypoints on the course". Similarly, claim 10 now recites "wherein the course calculated by the route calculation algorithm further includes identifying one or more non-user selected waypoints on the course". Finally, claim 41 now recites "wherein the processor operates on the route calculation algorithm to identify one or more non-user selected waypoints between the two or more waypoints".

In contrast, Fruchterman's POI discussion at the top of column 8, to which the Examiner points, appears to be unrelated to "identifying one or more non-user selected waypoints on the course". While Fruchterman does discuss routing around his area of exclusion, he doesn't explain how that is done. For example, as disclosed in other references, this could just be a matter of suggesting a direction change to avoid the area of

exclusion. As a result, no combination of Fruchterman and/or Tognazzini discloses, suggests, or makes obvious the limitations of claims 3, 10, 33, or 41.

Claim 16 recites "wherein the predetermined area includes radii extending along the heading from the present location". Claim 17 recites "wherein the radii includes an angle formed from line segments emanating from the present location". Finally, claim 18 now recites "wherein the angle includes user selectable values of greater than 0° degrees to 360° degrees".

In contrast, the Examiner admits that "Fruchterman does not teach using predetermined areas with radii extending along the ... heading", on page 9 of the May 2, 2006 Office Action. As discussed above, Tognazzini's threat boundaries are taught as being centered on a present location and extend equally in all directions. Similarly, Kronfeld discloses, in column 15 lines 45-52, "[i]t is typical for the perimeter of the [confidence zone] CZ to be 20 nautical miles or more from the center of the vehicle. ... The size and shape of a CZ or [avoidance zone] AZ may vary according to confidence in the position of the vehicle and to the target type, respectively". Thus, like Tognazzini, Kronfeld merely teaches spheres centered on a present location and extending equally in all directions, rather than basing a size or shape of the predetermined area on a speed or heading. As a result, no combination of Fruchterman, Tognazzini, and/or Kronfeld discloses, suggests, or makes obvious the limitations of currently pending claims. Furthermore, as Tognazzini and Kronfeld both disclose only complete spheres, or cylinders, neither can be said to suggest specifying a slice, such as "wherein the angle

includes selectable values of greater than 0° degrees to 360° degrees" as claimed in claim 18.

Claim 21 recites "determining a heading, wherein determining the heading includes determining the heading from an electronic compass signal". Claim 23, which depends from claim 21, recites "wherein determining the heading includes determining the heading based on the track log". Thus, claim 23 requires that the heading both be determined from "an electronic compass signal" and "based on the track log". This allows the present invention to compensate for the issues associated with each method.

In contrast, the Examiner mistakenly asserts that "GPS heading data is a functional equivalent of an electronic compass signal, in that it provides a heading signal from prior logged positions". Page 5 of the May 2, 2006 Office Action. However, as previously argued, providing "a heading signal from prior logged positions" is exactly the limitation of GPS heading data that the present invention's electronic compass overcomes. Specifically, typical GPS data is limited to position information, rather than orientation or heading information. Thus, GPS data can tell a user where they are, but cannot typically tell a user in which direction they are facing. In some GPS devices, heading is inferred through the use of a track log. However, even this is not equivalent to an electronic compass signal.

For example, suppose a user powers on a GPS device and remains still. Here, a typical GPS device will be able to determine the user's location, but will be at a complete loss as to the user's orientation or heading. This is because there is no track log from

which to infer the user's orientation or heading. In contrast, an electronic compass would recognize the user's true orientation or heading upon being powered up without requiring the use to take a single step.

As another example, suppose a user walks down a path, stops, and turns around. In this case, a typical GPS device will indicate that the user is still headed down the path. This is because the track log indicates the user's last inferred orientation or heading. In contrast, an electronic compass would recognize the user's turn and therefore indicate the user's true orientation or heading. Thus, typical GPS data is simply not the equivalent of an electronic compass signal. As a result, no combination of Fruchterman and/or Tognazzini discloses, suggests, or makes obvious "determining a heading, wherein determining the heading includes determining the heading from an electronic compass signal", as claimed in claim 21. Furthermore, no combination of Fruchterman and/or Tognazzini discloses, suggests, or makes obvious determining the heading from both an electronic compass signal and a track log, as claimed in claim 23.

Claim 37 recites "a transceiver operably coupled to the processor to wirelessly transmit and receive voice data signals with an electronic device". In contrast, Fruchterman discloses absolutely no capability to "transmit and receive voice data signals". The Examiner points to Fruchterman's voice synthesis. In fact, the Examiner acknowledges that "the invention taught by Fruchterman discloses a speech synthesizer, rather than a wireless transmission of voice data as claimed". Pages 7-8 of the May 2, 2006 Office Action. However, the Examiner appears to ignore the elements of a prima

facie case of obviousness as the Examiner fails to cite a reference that does teach "a wireless transmission of voice data as claimed", much less some actual motivation to modify Fruchterman. As a result, no combination of Fruchterman and/or Kronfeld discloses, suggests, or makes obvious "a transceiver operably coupled to the processor to wirelessly transmit and receive voice data signals with an electronic device", as claimed in claim 37.

Obviousness, it will be appreciated, can be a problematic basis for rejection because the Examiner, in deciding that a feature is obvious, has benefit of the Applicant's disclosure as a blueprint and guide, whereas one with ordinary skill in the art would have no such guide, in which light even an exceedingly complex solution may seem easy or obvious. Furthermore, once an obviousness rejection has been made, the Applicant is in the exceedingly difficult position of having to prove a negative proposition (i.e., non-obviousness) in order to overcome the rejection. For these reasons, MPEP § 2142 places upon the Examiner the initial burden of establishing a *prima facie* case of obviousness. If the Examiner fails to establish the requisite *prima facie* case, the rejection is improper and will be overturned. *In re Rijckaert*, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993). Only if the Examiner's burden is met does the burden shift to the applicant to provide evidence to refute the rejection.

Specifically, the Examiner must satisfy three criteria in order to establish the requisite *prima facie* case of obviousness: (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to



one of ordinary skill in the art, to modify the reference or combine their teachings; (2) there must be a reasonable expectation of success; and (3) the prior art reference (or combination of references) must teach or suggest all the claim limitations. MPEP §706.02(j), citing *In re Vaeck*, 20 USPQ2d 1438 (Fed. Cir. 1991).

In meeting this initial burden, as stated in MPEP §2143.03, to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 165 USPQ 494, 496 (CCPA 1970).

Furthermore, "[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." *In re Fritch*, 23 USPQ2d 1780, 1783-84 (Fed. Cir. 1992); *see also In re Gordon*, 221 USPQ2d 1125, 1127 (Fed. Cir. 1984). Additionally, "if the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." MPEP §2143.01.

In the present case, the Examiner has failed to cite art that teaches each and every limitation of the currently pending claims, much less any suggestion or motivation to make the Examiner's proposed modification(s). For example, as discussed above, neither Fruchterman or Tognazzini discloses, suggests, or makes obvious a size or shape of the predetermined area being based on a speed or heading, as claimed in claims 1, 8, 14, 29,

or 44, identifying one or more non-user selected waypoints on the course, as claimed in claims 3, 10, 33, or 41, "wherein the angle includes user selectable values of greater than 0° degrees to 360° degrees", as claimed in claim 18, "determining a heading, wherein determining the heading includes determining the heading from an electronic compass signal", as claimed in claim 21, determining the heading from both an electronic compass signal and a track log, as claimed in claim 23, or "a transceiver operably coupled to the processor to wirelessly transmit and receive voice data signals with an electronic device", as claimed in claim 37. Simply put, the Examiner has failed to cite references that teach each and every claim limitation and/or provide the requisite suggestion or motivation to make the Examiner's proposed modification, both of which are **required** to establish *prima facie* obviousness.

The remaining claims all depend directly or indirectly from independent claims 1, 8, 14, 21, 29, 37, or 44, and are therefore also allowable.

Any additional fee which is due in connection with this amendment should be applied against our Deposit Account No. 501-791. In view of the foregoing, a Notice of Allowance appears to be in order and such is courteously solicited.

Respectfully submitted,

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